DOCUMENT RESUME

ED 096 515 CE 002 145

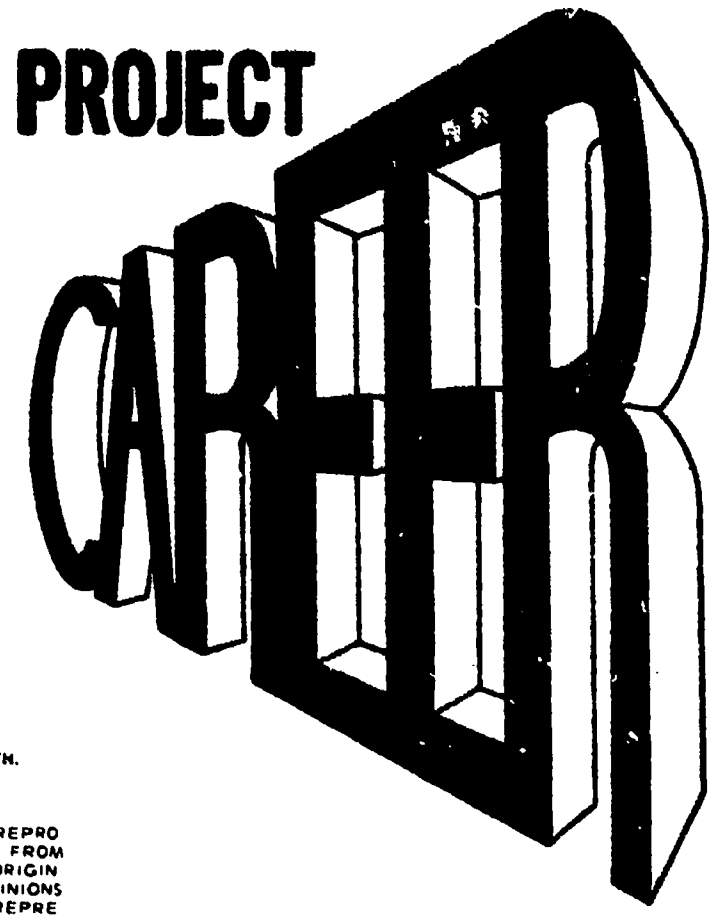
AUTHOR Leonard, Patricia M.
TITLE Suggested Models of Implementing the Project CAREER Data Bank.
INSTITUTION Massachusetts State Dept. of Education, Boston. Div. of Occupational Education.
PUB DATE Mar 74
NOTE 18p.

EDRS PRICE MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS *Behavioral Objectives; *Career Education; Curriculum Development; Curriculum Enrichment; *Data Bases; *Handicapped Students; Information Systems; Lesson Plans; Occupational Guidance; Teaching Guides; *Teaching Models; Vocational Development
IDENTIFIERS *Project CAREER

ABSTRACT

The report offers an overview of Project CAREER and its development of a computerized data bank of occupational behavioral objectives which can be used as curriculum building blocks for a career development process. Although developed for the general population, the data has applicability for the handicapped population via the coding of those behavioral objectives which are considered to be attainable by different disability groups. Instructional information is contained in the three-part statement and four columns of the computer printout, i.e., prerequisites, component tasks, environment, and concepts. The coding establishes guidelines for use of the data with various handicapped populations: visually impaired, hearing impaired, mentally retarded, speech impaired, physically impaired, and emotionally disturbed. Three organizational models are proposed as ways of organizing a career development program: (1) economic environment model, (2) curriculum topic model, and (3) occupational topic model. Either the multicluster or the one-cluster approach can be used with any of these models which integrate curriculum disciplines and the world of work. The report concludes with a sample commonality lesson plan based on Project CAREER data. (MW)

The Commonwealth
of Massachusetts
Department of Education



SUGGESTED MODELS OF IMPLEMENTING THE PROJECT CAREER DATA BANK

Division of Occupational Education

Suggested Models of Implementing the Project CAREER Data Bank

Prepared by
Patricia M. Leonard
Associate Project Administrator
Project CAREER/Handicapped

March, 1974

Project CAREER
Vincent P. Lamo, Director
301 North Main Street
Randolph, Massachusetts 02368

Credit is given to:

Ms. Terry Deutsch - Consultant in Elementary Education (Section III)
Mr. Steve Cremer - Consultant in Science Concepts (Section V)

The Implementation of the Project CAREER Data Bank

I. Overview

Career development has been described as an on-going process which encompasses three phases: career awareness, exploration and skill development. Ideally, the three phases should span the student's entire K-12 or K-14 educational experiences, with career awareness being introduced at the elementary level, exploration at the junior high school level and skill development training taking place in the high school and post-secondary years. However, elements of the three phases can be incorporated at any educational level depending upon the career readiness of the individual students.

Project CAREER is developing a computerized data bank of occupational behavioral objectives which can be used as curriculum building blocks for a career development process. The data has been developed for the general population but has applicability for the handicapped population via the coding of those behavioral objectives which are considered to be attainable by different disability groups.

A wealth of instructional information is contained in the three part statement and 4-columns of the computer printout, i.e., prerequisites, component tasks, environment and concepts. The coding establishes guidelines for the use of Project CAREER data with various handicapped populations by determining those behavioral objectives that a specific handicapped person could possibly achieve.

Individual differences in general and handicapped populations alike make absolute decisions about attainability of skills nearly impossible. Ceilings are not placed on any student who demonstrates the ability to progress beyond those skills deemed attainable. The instructor requests those behavioral objectives from the data bank which are attainable with modifications and, if these behavioral objectives are satisfactorily completed, the instructor moves on to request the remaining behavioral objectives in a particular occupational area.

The true creativity of an instructor comes in his or her use of the actual printout in the various phases of career development. Teaching styles are as varied as students' needs and can be accommodated through innovative use of the eight-part behavioral objective. Project CAREER does not dictate any prescribed methodologies for using the data. However, the Project has gained some experience in developing models for career awareness, exploration and skill development through the efforts of the pilot LEAs and can share these models which are suggestive of the types of manipulations that can be performed with Project CAREER data.

II. Career Development Phases

A career development program built upon the Project CAREER data should be an integrated part of an on-going curriculum. The three phases of career development (awareness, exploration, and skill development) can be presented most effectively by creative use of the entire eight-part Project CAREER behavioral objective.

Career awareness, for example, attempts to give the student a general understanding of the fact that people have jobs, jobs have titles, and certain tasks are performed within these jobs. Some of those tasks are unique to specific jobs and others are performed by persons in many occupations -- these tasks are "common" to a variety of occupations.

The Project CAREER data bank would be particularly applicable to his search for common tasks by computer retrieval of those behavioral objectives which are performed in a variety of occupations.

The four columns of instructional information can play a major role in the awareness phase by aiding the instructor to relate the traditional academic subjects to the world of work. The basic curriculum should not be altered; elementary students need the fundamental skills of computation and communication as much in the 70s as ever before. The presentation alone differs and the attitude of the instructor who attempts to demonstrate for the first time why linear measurement, principles of syllabication, and the concept of balance need to be understood. The relationship of academic subjects to the "real" world of work takes on new dimensions in classroom demonstrations and guided reading.

In the career exploration phase, students should be achieving some pre-vocational skills and attitudes in more selected cluster areas. The choices of the areas can be more intelligently made having had a taste of occupational tasks at the awareness level.

At this level, prerequisites to skills become even more important because they are required for completion of the three part skill statement. Here, too, commonalities play a major role in helping the student to see the transfer transfer of his acquired knowledge from one occupational field to another.

The concepts are additional bits of information which help make the learning of a skill more complete but are not necessary to the attainment of a skill. The component tasks provide the instructor with a "mini task analysis" which guides the instruction of skill material in a more detailed and sequenced fashion. Exploratory students may achieve few of the so-called

marketable, final skill behavioral objectives, but they may achieve mastery of selected parts of the component tasks leading to a skill. Conversely, career awareness pupils may learn a skill merely through demonstration and enthusiastic striving for greater knowledge about a cluster area. Individual differences of students make distinct boundaries for the phases of a career development program difficult, if not impossible, to define. Care must be exercised, however, not to make airline pilots out of third graders or track all junior high age students into one of five programs without regard for career choice.

Finally, the environment column is a rich resource of materials and equipment that can enhance the demonstration and explication of the behavioral objectives to all students. Skill development instructors in the third phase may find this column most useful since it relates heavily to the attainment of the specific behavioral objective. Instructors in the two preceeding phases, however, may find hints here for deft manipulation of the entire Project CAREER behavioral objective at a level that is compatible with the career readiness of the student.

Skill development students use their exploratory experiences to appropriately select an occupational area for closer examination. Actual saleable skills are learned at this level which prepare the student to enter the job market and compete with other applicants. Project CAREER data tells the instructor what skills industry deems necessary at the present time in 116 different occupations and delineates the necessary industrial standards under which these skills must be performed. The prerequisites learned in the exploratory phase are sharpened and expanded in preparation for skill training. Here, too, the process is open-ended with the student selecting the type and amount of training he desires. Career development is a dynamic, flexible concept that does not end with the formalized K-14 system.

Project CAREER/Handicapped has examined this fluid process for six disability levels: the visually impaired, hearing impaired, mentally retarded, speech impaired, physically impaired and emotionally disturbed. Each behavioral objective is coded by specialists in the particular disability as to its attainability by the above six populations. Once a decision as to attainability or attainability with modification is determined the behavioral objective must be examined for implementation in the classroom.

The entire Project CAREER behavioral objective was designed for the general and not the handicapped population. Certain provisions must be made to make the data useable by and for the special needs population.

In disabilities effecting the cognitive processes, the prerequisistes and concepts columns may need to be reduced to finer levels of comprehension.

The prerequisites as written represent the highest cumulative knowledges in various subject areas; this knowledge may need to be broken down into finer, more basic terms in order for a student to enter the column and begin mastery of the skill. Decimals, for example, may appear on the print out. This prerequisite may need to be broken into fractions and recognition of whole numbers before an educable mentally retarded pupil could attempt the concept of decimals.

The component tasks represent a sequence of events that must be achieved before the attainment of the skill is complete. Both cognitive and psychomotor disabilities might require a reduction of this column either for comprehension of the discrete steps or for physical attainment of such tasks. Modifications of any of the component task steps would ideally be placed under the environment column as an additional resource for teaching the skill.

These modifications would in effect be altering the behavioral objective if they must be used on the job and should show as an (M) in the coding strip.

Handicapped individuals are not precluded then from benefiting from a career development program based on Project CAREER data. The eight-part behavioral objective determines the attainability of the skill and those skills possibly attained with modifications. The 4 columns provide necessary academic and occupational information that can be introduced by appropriately reducing the level of complexity of the prerequisites, concepts and component tasks, and by being innovative in devising certain modifications for the distinct disability groups.

III. Three Models of Career Development

Three organizational models have been proposed as ways of organizing a career development program. The three models offer alternative styles which will meet the needs of a variety of teaching styles (e.g. self-contained, departmentalized, team teaching) and a variety of instructional sytles (e.g. small groups, large groups, lecture, individualized).

Two forms of organization are the Multi-Cluster (Form MC) approach which covers occupations across several of the 15 U.S.O.E. Occupational Clusters, and the One Cluster (Form 0) approach which centers its attention upon many occupations within one of the clusters.

Either the Multi-Cluster or the One Cluster approach can be used with any of the following focal points, which integrate curriculum disciplines and the world of work. The focal points are:

(1) Economic Environment Model
    e.g. Airport, Hospital, Business Firm, Museum, Restaurant

(2) Curriculum Topic Model
    e.g. Math-Measurement, Science-Electricity, Social Studies-The Neighborhood, Language Arts - Communication

(3) Occupational Topic Model
    e.g. Manufacturing Cluster - Manufacturing Processes, Health Cluster - Community Health Services, Business/Communications and Media - The Recording Industry
    Consumer and Homemaking - Food Serivce Management and Sales Promotion

The Economic Environment Model focuses upon an economic setting such as a hospital, an airport, or a supermarket. Each of these settings involves numerous jobs within specific clusters and among a variety of clusters. The hospital, for example, involves jobs within the health cluster (e.g. nurse, lab technicians, nurse aides, therapists, etc.) The teacher may choose to use either organizational Form MC or Form O depending upon the amount of time and depth with which the focal point will be dealt. More time may enable the teacher to plan activities involving occupations within a number of different clusters.

The Occupational Topic Model is applicable to a different scope of occupations than the Economic Environment Model. In comparison, the Economic Environment Model's focal point is Community Health Services, and the Hospital Topic Model's focal point is Community Health Services. The Hospital focal point would incorporate all those occupations within the hospital, e.g. hospital administrators, medical doctors, ambulance attendants, laboratory technicians, nurses, therapists, receptionists, X-ray clerks, etc.

The Hospital unit could also relate to other clusters such as building construction, business and office duties, consumer and homemaking, to name just a few. The Community Health Services Topic, however, includes the Hospital Services as well as occupations outside the hospital environment: Public Health Educators, School Nurses, Sanitarians, Home Health Aids. The functions and services of these occupations involve integration into other clusters just as the Hospital Model dies. For example, one function or service of a Public Health Educator might be a campaign concerning the effects of cigarette smoking.

This task would involve the Business and Office Cluste· for typing the literature, Communications and Media for publicity, Fine Arts and Humanities for design of posters and pamphlets and Environment for pollution effects. This example shows how the Occupational Topic Model can involve a variety of economic environments in which a specific occupation may occur. From this example, it can be seen that the Economic Environment Model and the Occupational Topic Model have different emphases involving different aspects of a similar topic.

The Curricular Topic Model has as its focal point a specific discipline from the ongoing curriculum (example: math) and a specific topic of skills within that discipline (example: measurement). If the instructor chooses to work with one cluster (Form 0), then he would look for all the occupations within that cluster which deal with measurement. If one were working with the occupations in the Construction Cluster (Form 0) for example, one would find that the carpenter, the electrician, the mason, and the cabinet maker need to know measurement. Further, the instructor could develop activities based on Project CAREER data in the area of math only, or he could integrate "Measurement" into other curriculum subject areas. For instance, spelling words could deal with measurement and its occupational relationships. In Social Studies, two scale model houses from a period such as Colonial America in history could be built which would also bring in art.

The Math-Measurement focal point could be expanded in a different manner if Form MC were chosen since measurement skills are involved in a multitude of clusters. For example, the nurse within the Health Cluster needs to measure amounts of medicine, the carpenter in the Construction cluster needs to know how to measure to build a cabinet. Using Form MC focuses on "measurement" in many different environments.

Thus, three different Career Awareness models have been described:

(1) Economic Environment Model which focuses upon an economic setting.

(2) Curriculum Topic Model which focuses upon a specific topic or skill within a subject area of the curriculum.

(3) Occupational Topic Model which focuses upon a specific occupation whose functions or services involve a variety of economic environments.

Each of these models can be used with Form O or with Form MC. Choice in forms will depend upon

(1) the applicability of Project CAREER data to the focal point
(2) the individual teaching style and classroom organization
(3) time to be spent on the focal point
(4) amount of depth which the class is able to handle concerning the focal point
(5) available resources

These models can be used in any of the career development phases, although some focal points may be more appropriately implemented in one phase than another. These approaches are as applicable for the special needs student as for the general pupil by examining appropriate coding of behavioral objectives within occupations for various handicapped populations. Such an analysis of behavioral objectives will help curb prejudiced and stereotypic thinking concerning occupational fields and their ability to be entered by the disability groups. The application of any of the above models, together with a full understanding of the entire eight Project CAREER behavioral objectives, should enable the creative educator to build an effective and relevant career development program for any student, regardless of his special needs.

IV. Sample Commonality Lesson Plan Based On Project CAREER Data

(Concept - Balance written for Junior High School Educable Mentally Retarded Population).

The concept of balance takes on many meanings depending upon its application.

1. Balance - an instrument, a scale

2. Equality of two things in weight, force, quantity, importance, value, etc.

3. Equilibrium in design, painting, musical composition - harmonious proportion

4. Equality of debits and credits - accounting

5. Body Equilibrium - balance of human body

6. Mental or emotional equilibrium

All of these meanings relate to behavioral objectives in the career data bank. A classroom teacher could use these eight-part behavioral objectives to demonstrate or reinforce an understanding of the concepts of Balance.

To demonstrate this, a few objectives were selected from the Project CAREER data bank which have the concepts of balance in the fourth column and have relevance to eleven discrete occupations.

With a wider selection of performances to choose from, all the various definitions and meanings of the concept of balance could be taught in a complete sequence of exploration activities.

Composition of Interdisciplinary Team

School System

Level of career development: Exploration

Project CAREER
Career Development Instructional Design

Lesson Plan Which Emphasizes Balance As A Commonality Concept For The EMR Population

Instructional	Resources	Interdisciplinary Involvement
I. B.O. # 007670 occupations: 07938 L.P.N. DOT # 355879 Ward Orderly Balance in its use as an equality of masses. A. Construct a Balance 1. Set it so that it balances at center. Demonstrate or have students add objects maintaining an equilibrium. 2. Set balance so fulcrum is 3 inches from end. Demonstrate effect of small weight balancing a large weight. 3. Relate to leverage and to scale used to weigh children.	Yardstick with holes drilled one inch apart, paper cups with string or pipe cleaner supports. Various objects of different weights Post, with nail as fulcrum, Weight scale balance with counterweights.	Special Educator Science Specialist School Nurse Health Specialis

B.O. I.D. #'s - 007670, 000624, 001669

Occupations - LPN, Ward Orderly, Secretary, Stenographer, Clerk-Typist, Medical Secretary, General-Clerk, Receptionist, Brake Mechanic, Service Station Attendant, Auto Service Mechanic.

Project CAREER
r Development Instructional Design

on Plan Which Emphasizes Balance
A Commonality Concept For The
EMR Population"

	Interdisciplinary Team Involvement	To Which Part Of 7-Part Behavioral Objec. Strategy Relates
ith holes drilled art, paper cups or pipe cleaner ects of different nail as fulcrum, balance with ghts.	Special Educator Science Specialist School Nurse Health Specialist	Concept: Balance Related to Concept: Leverage

Instructional	Resources	Interdis Involvem
B. Use a seesaw 1. Have students vary weight distribution. 2. Demonstrate balancing with fulcrum. 3. Relate to leverage.	Seesaw	
II. B.O. #000624 occupations: 201368 Secretary DOT # 202388 Stenographer 209589 Clerk-Typist 201369 Medical Secretary 209588 Clerk General 237368 Receptionist		
Balance, as equilibrium of design or as equality of quantities	-	
A. A balanced, centered typewritten page will demonstrate aesthetic balance or harmonious proportions.	Typewriter Paper Business Letter	Busines. Special Art Teac
B. Discussion of balance and proportion in art visual communications, etc.		
C. Work on demonstration of the effectiveness of a balanced sign, picture or letter in communicating ideas effectively.		

ɜsources	Interdisciplinary Team Involvement	To Which Part Of 7-Part Behavioral Objec. Strategy Relates
,esaw		
·pewriter per ·siness Letter	Business Specialist Special Educator Art Teacher	Concept: Balance Related to Concept: Proportion

Instructional	Resources	Interdisciplinary Involvement
III. B.O. #001569		
occupations: 620281 Brake Mechanic DOT # 915867 Service Station Att. 620381 Auto Serv. Mech.		Industrial A Automotive Science Tea
A. Spin A Top		
1. Add clay weight to one side, and spin top again.	Top Clay	
2. Using bicycle wheel with handles in axle, spin wheel and set on floor (on axle), so wheel spins like a top. Demonstrate how clay weights effect stability of rotating wheel.	Bicycle Wheel Handles to fit on anxle Gyroscopic demonstration device	
3. Mount wheel on bobble balance. Balance wheel. Show effect on improved rotation.	Bicycle Bubble balance	
4. Mount wheel on bicycle. Vary positions of weights. Have students ride bicycle with wheels unbalanced (using lead weights attached to spokes)	Lead weights	
5. Relate activities to rotational stability and to balance beam.	Blackboard Overhead projector Slides	

ces	Interdisciplinary Team Involvement	To Which Part Of 7-Part Behavioral Objec. Strategy Relates
	Industrial Arts Automotive Teacher Science Teacher	Concept: Balance Related to Concept: Rotational Stability
: Wheel s to fit on anxle opic demonstration ce		
: balance		
veights		
oard ead projector Slides		

Instructional	Resources	Interdisc Involvem
IV. Supplemental Activity		
A. Center of gravity, for balance point.	Card, pencil, compass, scissors, thread, needle	
1. Draw and cut out circle. Balance circle, with pin at center.		
2. Cut out perfect square. Construct diagonals from corners, balance on point at center.		This demonstrates how, i the wheels of a car, we a so that the center of grav rotational center for stabi
3. Suspend irregularly shaped card (from one of its edges or corners) with thread to a thumbtack. Continue line of thread down face of card, using a pencil. Suspend by a new corner. Balance card with needle at intersection of points on card.		

sources	Interdisciplinary Team Involvement	To Which Part Of 7-Part Behavioral Objec. Strategy Relates
rd, pencil, compass, issors, thread, needle		
	This demonstrates how, in balancing the wheels of a car, we are adding weights so that the center of gravity is located at rotational center for stability.	